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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,378	07/31/2000	Chandra S. Chekuri	2-4-4	4158

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EXAMINER

MILLS, DONALD L

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/628,378

Applicant(s)

CHEKURI ET AL.

Examiner

Donald L Mills

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 10-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign not mentioned in the description, "124" (Figure 3), and they do not include the following reference sign mentioned in the description, "146" (See page 10, line 25). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informality:

Page 1, line 7, "Attorney Docket No" should be corrected to the appropriate U.S.

Application Number.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-4, 8, 9, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Markus (US 5,561,841).

Regarding claim 1, Markus discloses a method and apparatus for planning a cellular radio network, which comprises:

Applying an optimization process to a set of information characterizing the network (Optimizing the operation of the network based upon its operation. See column 11, lines 13-16,) *the optimization process comprising at least a pre-frequency-assignment optimization stage, the pre-frequency-assignment optimization stage being applied to assignment of frequencies to one or more communication channels of the wireless network* (Optimization is performed by correcting the network configuration which comprises frequency allocation which is inherently for a wireless network. See column 11, lines 16-17 and column 5, lines 63-65.)

Utilizing an output of the optimization process to determine at least one operating parameter of the wireless network (Optimizing cell areas and channel handovers results in adjusting the borders of the service areas. See column 11, lines 29-33.)

Regarding claim 2, Markus discloses *a multistage optimization process having at least the pre-frequency-assignment optimization stage followed by a frequency assignment stage* (The optimal parameters, comprising frequency allocation, are determined prior to the assignment of frequency. See column 5, lines 65 and column 6, lines 1-4.)

Regarding claim 3, Markus discloses *repeating in an iterative manner the pre-frequency-assignment optimization stage and the frequency assignment stage* (The program operates iteratively utilizing the control parameters, comprising frequency allocation, which inherently comprises assigning the frequency a value. See column 11, lines 19-21.)

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Regarding claim 4, Markus discloses *wherein the frequency assignment stage comprises a frequency planning stage* (Frequency planning is determined. See column 6, lines 1-2.)

Regarding claim 8, Markus discloses *wherein the operating parameter of the wireless network comprises at least one of a base station transmit power and an antenna orientation* (The network configuration of the wireless network comprises adjusting the base station by means of power level, which inherently includes transmit power. See column 11, lines 33-35.)

Regarding claim 9, Markus discloses *wherein the optimization process determines a network configuration for specified values of network capacity and network coverage* (Optimal locations and parameters are found for capacity and coverage. See column 5, lines 65-66 and column 6, lines 3-5.)

Regarding claims 23, 24, and 25, Markus discloses a method and apparatus for planning a cellular radio network, which comprises:

A processor-based system operative to apply (Claim 23)/Means for applying (Claim 24)/Applying (Claim 25) an optimization process to a set of information characterizing the network (Referring to Figure 1, the Network Planning System, inherently processor based, optimizes the operation of the network based upon its operation. See column 4, lines 46-48 and column 11, lines 13-16,) *the optimization process comprising at least a pre-frequency-assignment optimization stage, the pre-frequency-assignment optimization stage being applied prior to assignment of frequencies to one or more communication channels of the wireless network* (Optimization is performed by correcting the network configuration which comprises frequency allocation which is inherently for a wireless network. See column 11, lines 16-17 and column 5, lines 63-65.)

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Wherein (Claims 23 and 25)/Means for utilizing (Claim 24) an output of the optimization process is utilized to determine at least one operating parameter of the wireless network (Optimizing cell areas and channel handovers results in adjusting the borders of the service areas. See column 11, lines 29-33.)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markus (US 5,561,841) in view of Faruque (US 6,128,497).

Regarding claim 5 as explained above in the rejection statement of claim 1, Markus discloses all the claim limitations of claim 1 (parent claim). Markus does not disclose *wherein the wireless network implements a frequency reuse factor greater than one.*

Faruque teaches a fractional frequency reuse plan of that provides a cellular radiotelephone system $N=5.333$ capacity (See column 3, lines 23-25.) In addition, Faruque teaches that greater frequency reuse allows more mobile traffic to use the cellular system (See column 1, lines 51-53.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the frequency reuse plan of Faruque in the cellular radio network planning method Markus. One of ordinary skill in the art at the time the invention was made

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would have been motivated to do so in order to allow more mobile users to access a cellular system.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markus (US 5,561,841).

Regarding claim 6 as explained above in the rejection statement of claim 1, Markus discloses all the claim limitations of claim 1 (parent claim). Markus does not disclose *the wireless network comprising at least one of a TDMA wireless network, an FDMA wireless network, a CDMA wireless network, an OFDM wireless network, and a TDD wireless network.*

Markus teaches a method for planning a cellular radio network, specifically a GSM network, where the performance of the cellular network can be optimized (See column 2, lines 3-8 and column 5, lines 7-8.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement CDMA or TDMA in the cellular radio network planning method Markus. One of ordinary skill in the art at the time the invention was made would have been motivated to do so because CDMA and TDMA are well known in the art.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markus (US 5,561,841) in view of Benveniste (US 5,404,574).

Regarding claim 7 as explained above in the rejection statement of claim 1, Markus discloses all the claim limitations of claim 1 (parent claim). Markus does not disclose *wherein the optimization process utilizes a derivative-based optimization of a specified objective function.*

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Benveniste teaches a method for deriving an initial channel assignment based on a variation of the Channel Group Augmentation algorithm (See column 6, lines 43-45,) for efficient non-regular channel assignment (See column 1, lines 38-41.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the method for non-regular channel assignment of Benveniste in the cellular radio network planning method Markus. One of ordinary skill in the art at the time the invention was made would have been motivated to do so in order to optimally use non-regular channels for efficiently utilizing the RF spectrum.

Allowable Subject Matter

9. Claims 10-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Faruque (US 5,483,667) – Frequency reuse plan of $N=3$.

Rydberg et al. (US 5,497,503) – Computer model predicts aggregate interference from base stations.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L Mills whose telephone number is 703-305-7869. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Donald L Mills



October 13, 2003



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